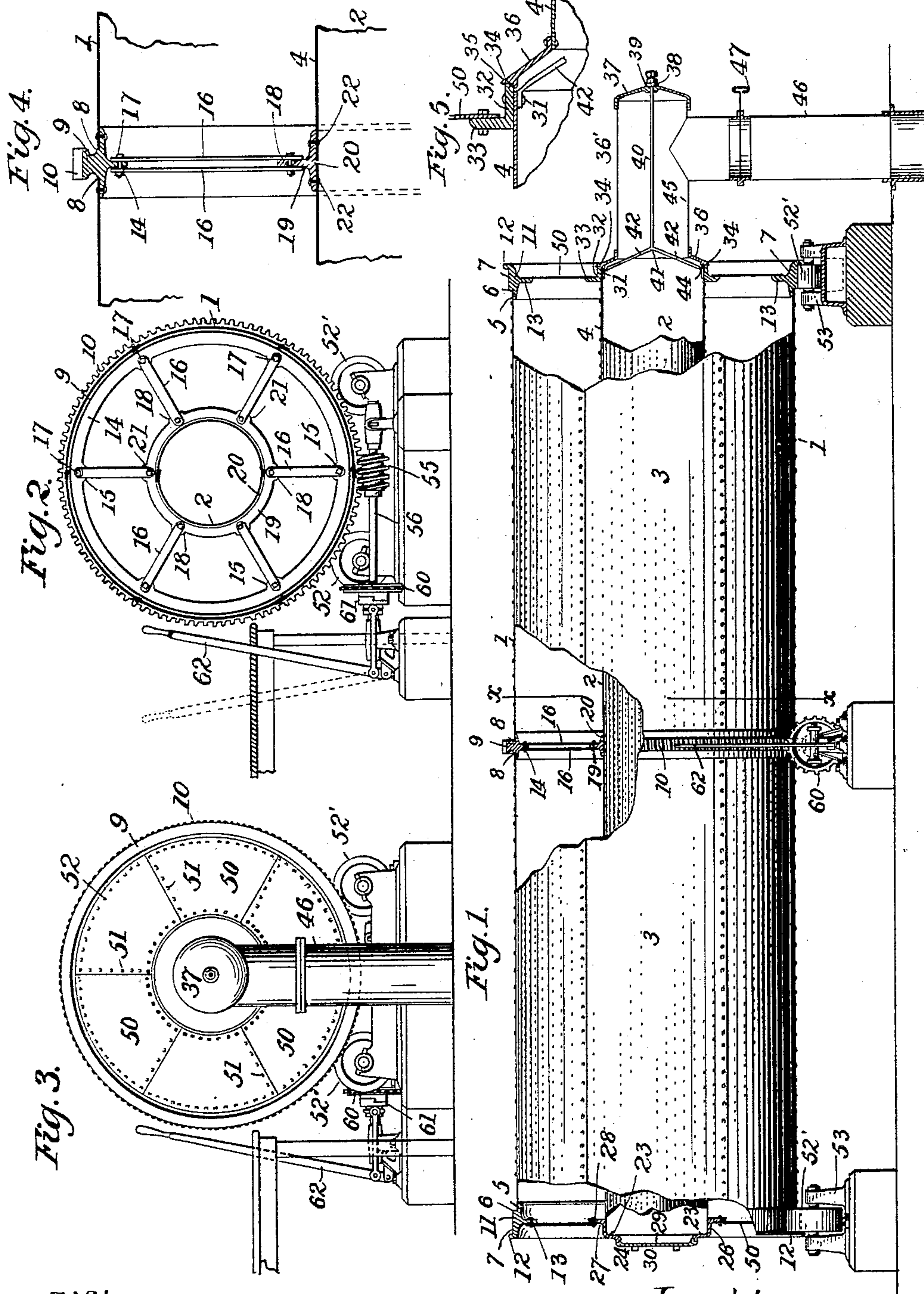


(No Model.)

J. A. TILDEN.
PNEUMATIC MALTING DRUM.

No. 602,528.

Patented Apr. 19, 1898.



Witnesses:
E. Everett Ellis
Att. Fingerprint

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UNITED STATES PATENT OFFICE.

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PNEUMATIC-MALTING DRUM.

SPECIFICATION forming part of Letters Patent No. 602,528, dated April 19, 1898.

Application filed December 1, 1896. Serial No. 614,127. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. TILDEN, a citizen of the United States, residing at Hyde Park, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Pneumatic-Malting Drums, of which the following is a specification.

This invention relates to certain new and useful improvements in malting-drums for the carrying out of pneumatic-malting processes; and it consists, substantially, in such features of construction, arrangement, and combinations of parts as will hereinafter be more particularly described.

In the accompanying drawings, wherein I have illustrated a preferred embodiment of my invention, Figure 1 is a longitudinal part sectional view of a malting-drum constructed and arranged in accordance with my invention. Fig. 2 is a transverse sectional view thereof, taken on the line xx . Fig. 3 is an end view, looking toward the left. Figs. 4 and 5 are enlarged detail views.

In carrying my invention into effect I preferably employ both an outer drum or cylinder 1 and an inner drum or cylinder 2, the two being concentrically arranged, and the said outer drum comprising two longitudinal sets of perforated circumferential plate-sections 3, of any suitable number, but preferably six in each set, and the said inner drum comprising also two longitudinal sets of similarly-perforated circumferential plate-sections 4, of any suitable number, but preferably two in each set. The said plate-sections of the said inner and outer drums are properly set up to be perfectly true and concentric, and they are planed at their ends, and at each end of the outer drum the outer ends of the sections 3 of each longitudinal set thereof are butted at 5 against turned edges or flanges 6, formed on or with outer end rings 7. The inner ends of the plate-sections 3 of each longitudinal set thereof are in like manner butted against similarly-formed edges or flanges 8 on a central outer strengthening-ring 9, which, as will be observed, is provided exteriorly all around with gear-teeth 10 and constituting a gear-ring through the medium of which the drum is rotated, as will be ex-

plained. Each of the said outer end rings 7 is somewhat widened at the body portion 11, so as to furnish outside surface sufficient for movable or rotating end bearings for the drum, and said rings also are each formed or provided with an outwardly-projecting guide-flange 12 and a centrally-disposed inwardly-projecting flange or web 13. The said central outer strengthening-ring 9 is also formed or provided with a central inwardly-disposed web or flange 14, and at regularly-determined points of the flange suitable lugs 15 are provided for the attachment of the outer ends of duplicate metallic straps 16, by which the inner drum or cylinder is maintained centrally of or concentric with the outer drum. The said straps could be of any number desired, but preferably they are in pairs equal to the number of circumferential plate-sections 3 in the outer drum, and they are fastened to the opposite sides of the lugs 15 or to the flange or web 14 by means of bolts and nuts 17. The point of connection thereof with the said central outer strengthening-ring is preferably adjacent the longitudinal meeting edges of the said plate-sections 3.

The inner ends of the pairs of straps 16 are in like manner fastened or secured at 18 to the opposite sides of a corresponding web or outer flange 19, formed on an inner central strengthening-ring 20, which ring is also preferably provided with lugs 21 to receive the fastening-bolts to hold said straps. The inner ends of the two sets of plate-sections of the inner cylinder are butted and secured at 22 to the body of the said inner central strengthening-ring in substantially the same way as the corresponding ends of the plate-sections 3 of the outer drum are secured to the central outer strengthening or gear ring 9.

The outer ends of one of the longitudinal sets of plate-sections 4 of the inner drum or cylinder (say the set at the left) are butted against an inwardly-projecting flange 23 of an inner end ring 24, and they are fastened to the body 26 of the said ring, which latter is also turned outward at 27 to form a web or flange 28, corresponding to and in alignment with the web or flange 13 of the surrounding outer end ring 7. The opening 29 of this inner end ring 24 is closed by means of an end

plate 30 in any suitable manner. The outer ends of the other or right-hand set of plate-sections 4 of the inner drum or cylinder are secured at 31 to a corresponding inner end ring 32, which has a web or flange 33, corresponding to and in alinement with the web or flange 13 of its surrounding outer end ring 7, and this inner end ring is minus any flange or face corresponding to the flange 23 of its fellow, but on the other hand the edge 34 of the body portion of the ring is squared to fit the annularly chamfered or grooved edge of a conical ring 36, which in part constitutes the air-receiving head 36' of the drum. This head is further constituted of an outer head 37, having a central bearing 38 for the outer end or extremity 39 of a revolving brace and support 40, the inner extremity of which latter being forked or bifurcated at 41 to constitute arms 42, the ends of which are bent and secured at 44 to the inner side of the body portion of the said inner end ring 32. A comparatively short cylindric shell 45 completes the said air-receiving head, which head, it will be understood, remains stationary during the rotation of the drums. The air-head is in communication with an air-trunk 46, which may be either separable in character, as shown, or it may be of any other preferred construction, and it is provided with a sliding gate or regulator 47. It will be understood that as the drums are rotated the edge of the inner end ring 32 turns upon or within the chamfered or grooved edge of the conical ring 36, while the bolt or brace 40 rotates with the drums.

At the ends the space between the two drums or cylinders is closed in any suitable way; but preferably and as a convenient way I close the same by means of imperforate plate-sections 50, which are secured at their inner and outer edges to the corresponding webs or flanges 28, 33, and 13 of each of the inner end rings and of the outer end rings, respectively. The said plates may be of any number desired; but preferably they are equal to the number of circumferential sections 3 in the outer drum, and they are lapped at their meeting edges and secured together by means of bolts or rivets 51, similar bolts or rivets 52 being employed to secure them to the flanges or webs referred to of the several rings. These end plates also serve as a connecting and strengthening medium between the cylinders at the ends.

The outer surfaces of the outer end rings 7 rest upon suitable supporting friction-rollers 52', mounted in bearings 53 at the ends of the drum, a suitable distance to either side of the longitudinal axis thereof, and the guide-flanges 12 of the said end rings 7 prevent the drum from endwise movement.

The drums are rotated by means of a worm screw-gear 55, carried by a shaft 56, supported in suitable bearings, and which screw-gear meshes with the teeth of the central gear

strengthening-ring 9, as shown. Said shaft is preferably provided with a small sprocket-wheel 60, through the medium of which connection is had with any suitable driving power. (Not shown.) I preferably also employ a suitable two-part clutch 61, one part of which is capable of being moved in and out by means of a lever 62, so as to cause the sprocket 60 to run idle whenever it is desired that no movement be imparted to the drum.

In conclusion I would say that the plate-sections of both the inner and outer drums are duplicates of each other and are therefore interchangeable, and the imperforate end or head plates 50 are also duplicates of each other. Ready access is had to the interior of the two drums or cylinders, and the inner drum is easily and quickly separable from the outer drum. All the parts are made to template, and the drums when set up will run perfectly true, and they will not be strained at the middle nor cause any of the weight thereof to be thrown or imposed upon the gear devices. Each of the rings herein referred to is preferably made of cast-iron, while all the remaining parts of the drum or drums are of plate-steel, with the exception, perhaps, of the connecting-straps between the two drums. The outer drum may be provided at suitable points thereof with filling-holes in the usual manner.

Without limiting myself to the precise details of construction and arrangement shown, I claim—

1. A malting-drum comprising an outer cylinder and an inner perforated cylinder, a gear-ring constituting a part of the outer cylinder and arranged intermediate the ends thereof, and detachable radial arms connecting the gear-ring and the inner cylinder, substantially as described.

2. A malting-drum comprising an inner and an outer cylinder each formed of a series of plate-sections, a ring 7 at one end of the outer cylinder provided with a horizontal flange to which the plate-sections are secured and with a vertical inwardly-extending flange, a ring 24 at the end of the inner cylinder formed with inwardly and outwardly extending flanges 23, 28, and an intermediate horizontal body portion 26, plates 50 secured to the outwardly-extending flange of said ring and the interior flange of the outer ring, and an end plate 30 seated upon the inwardly-extending flange of the inner ring to close the end of the inner cylinder, the horizontal body portion of said inner ring constituting a bearing to which the plate-sections 4 of the cylinder are secured, substantially as described.

3. The combination with a malting-drum having at one end a ring, of an air-receiving head comprising a cylinder closed at one end, a conical ring united to the open end of the cylinder and having a chamfered or grooved edge in which the end ring of the cylinder is adapted to turn, and the bifurcated brace se-

cured to the latter ring and having a movable bearing in the closed end of the said head, substantially as described.

4. A malting-drum, comprising an outer
5 cylinder formed of connected plate-sections, an inner cylinder extending longitudinally through the outer cylinder, a gear-ring intermediate the ends of the outer cylinder provided upon opposite sides with horizontal
10 flanges to which the plate-sections are secured, and radial arms extending from the gear-ring and secured to the exterior of the inner cylinder, substantially as described.

5. A malting-drum, comprising an inner
15 and an outer cylinder, each formed of connected plate-sections, a gear-ring intermediate the ends of the outer cylinder provided upon opposite sides with horizontal flanges to which the plate-sections are secured, and radial
20 arms extending from the gear-ring and detachably connected to the inner cylinder to permit the removal of said cylinder from the outer one, substantially as described.

6. A malting-drum comprising an inner and
25 an outer cylinder, each formed of connected plate-sections, a gear-ring intermediate the

ends of the outer cylinder provided upon opposite sides with horizontal flanges to which the plate-sections are secured and with an internal flange, a flanged ring secured upon the
30 exterior of the inner cylinder, and detachable radial arms connecting the said ring with the gear-ring, substantially as described.

7. A malting-drum comprising an outer
cylinder formed of connected plate-sections, 35 an inner cylinder extending centrally and longitudinally through the outer cylinder, a ring intermediate the ends of the outer cylinder provided upon opposite sides with horizontal flanges to which the plate-sections are
40 secured, and radial arms extending from the said ring and detachably secured to the exterior of the inner cylinder to permit the removal of said cylinder from the outer one, substantially as described. 45

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES A. TILDEN.

Witnesses:

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WM. J. SMITH.